

# Основы интерфейса взаимодействия пользователя с системой Unix на уровне командной строки

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Бадалов Заури Эльвин оглы<sup>1</sup>

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<sup>1</sup>Российский Университет Дружбы Народов

# Цели и задачи работы

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# Цель лабораторной работы

Приобретение практических навыков взаимодействия пользователя с системой посредством командной строки.

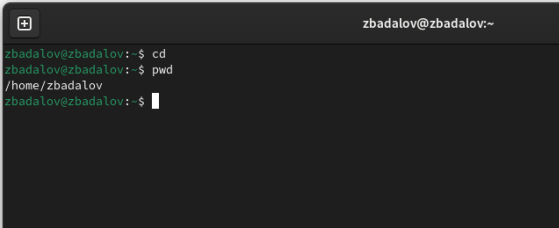
# Задачи лабораторной работы

- 1 Определить имя и путь домашнего каталога
- 2 Изучить команду `ls`.
- 3 Выполнить действия с каталогами.
- 4 Получить дополнительные сведения при помощи справки по командам.
- 5 Изучить команду `history`.

# **Процесс выполнения лабораторной работы**

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# Имя и путь к домашнему каталогу

A terminal window with a dark background. The title bar at the top shows a window icon on the left and the text 'zbadalov@zbadalov:~' on the right. The terminal contains the following text:

```
zbadalov@zbadalov:~$ cd  
zbadalov@zbadalov:~$ pwd  
/home/zbadalov  
zbadalov@zbadalov:~$ █
```

The text is in a green monospaced font. The prompt character is '\$'. The cursor is represented by a white block character '█' at the end of the last line.

**Рис. 1:** Путь к домашнему каталогу

# Опции команды ls

```
zbadalov@zbadalov:~$ cd /tmp
zbadalov@zbadalov:/tmp$ ls
dbus-eB203F81
dbus-IdxVnnik
hperfdata_zbadalov
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-chronyd.service-hmVd0g
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-colord.service-9kR9zZ
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-dbus-broker.service-zuPjVL
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-fwupd.service-0v19yv
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-low-memory-monitor.service-6Jqe0i
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-ModemManager.service-xfdw0i
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-polkit.service-5bLXXy
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-power-profiles-daemon.service-6v3Gss
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-rtkit-daemon.service-1cPdNk
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-switcheroo-control.service-8wIX85
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-systemd-logind.service-gVfxk8
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-systemd-oomd.service-uEBekw
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-systemd-resolved.service-oY0spM
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-upower.service-hSyAZ4
VMwareDnD
vmware-root_916-2689678442
zbadalov@zbadalov:/tmp$
```

Рис. 2: Команда ls

# Опции команды ls

```
zbadalov@zbadalov:/tmp$ ls -la
..
dbus-eB203F81
dbus-IdxVnnik
.font-unix
haperfdata_zbadalov
.ICE-unix
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-chronyd.service-hmVdDg
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-color.service-9kR9zZ
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-dbus-broker.service-zuPjvL
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-fwupd.service-0v19yv
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-low-memory-monitor.service-6Jqe0i
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-ModemManager.service-xfdW0i
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-polkit.service-5bLXXy
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-power-profiles-daemon.service-6v3Gss
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-rtkit-daemon.service-1cPdNk
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-switcheroo-control.service-8wIXB5
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-systemd-logind.service-gVfxk8
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-systemd-oomd.service-uEBEkw
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-systemd-resolved.service-oY0spM
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-upower.service-h5yAz4
VMwareDnD
vmware-root_916-2689078442
.X0-lock
.X1024-lock
.X1025-lock
.X11-unix
.X1-lock
.XIM-unix
zbadalov@zbadalov:/tmp$
```

Рис. 3: Команда ls -la



# Опции команды ls

```
zbadalov@zbadalov:~$ ls -l
total 0
-rw-r--r-- 1 root root 0 aar 30 18:11 dbus-e8201f81
-rw-r--r-- 1 root root 0 aar 30 18:11 dbus-IdaVnnik
drwxr-xr-x 2 zbadalov zbadalov 40 aar 30 18:41 hyperfdata_zbadalov
drwx----- 3 root root 60 aar 30 18:11 systemd-private-41b3bd3d9b1847b3b1d0b46196550471-chrompd.service-hu0Dg
drwx----- 3 root root 60 aar 30 18:11 systemd-private-41b3bd3d9b1847b3b1d0b46196550471-color.service-9k0z2
drwx----- 3 root root 60 aar 30 18:11 systemd-private-41b3bd3d9b1847b3b1d0b46196550471-dbus-broker.service-zuPjyl
drwx----- 3 root root 60 aar 30 18:15 systemd-private-41b3bd3d9b1847b3b1d0b46196550471-fupdp.service-0v39yy
drwx----- 3 root root 60 aar 30 18:11 systemd-private-41b3bd3d9b1847b3b1d0b46196550471-low-memory-monitor.service-63qe0i
drwx----- 3 root root 60 aar 30 18:11 systemd-private-41b3bd3d9b1847b3b1d0b46196550471-mdevd.service-xf00s1
drwx----- 3 root root 60 aar 30 18:11 systemd-private-41b3bd3d9b1847b3b1d0b46196550471-polkitt.service-8uXxy
drwx----- 3 root root 60 aar 30 18:11 systemd-private-41b3bd3d9b1847b3b1d0b46196550471-power-profiled-daemon.service-4v36ss
drwx----- 3 root root 60 aar 30 18:11 systemd-private-41b3bd3d9b1847b3b1d0b46196550471-rtkit-daemon.service-1cP00k
drwx----- 3 root root 60 aar 30 18:11 systemd-private-41b3bd3d9b1847b3b1d0b46196550471-switcheroo-control.service-buIX85
drwx----- 3 root root 60 aar 30 18:11 systemd-private-41b3bd3d9b1847b3b1d0b46196550471-systemd-logind.service-gvFak5
drwx----- 3 root root 60 aar 30 18:11 systemd-private-41b3bd3d9b1847b3b1d0b46196550471-systemd-sound.service-0R8w
drwx----- 3 root root 60 aar 30 18:11 systemd-private-41b3bd3d9b1847b3b1d0b46196550471-systemd-resolved.service-0V8ygn
drwxrwxrwt 2 zbadalov zbadalov 240 aar 30 19:55 vmwarefs
drwx----- 2 root root 40 aar 30 18:11 vmware-root-316-2659078442
zbadalov@zbadalov:~$
```

Рис. 4: Команда ls -l

# Опции команды ls

```
zbadalov@zbadalov: /tmp$ ls -f
.
..
.X11-unix
.ICE-unix
.XIM-unix
.font-unix
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-systemd-oomd.service-uEBEkw
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-systemd-resolved.service-oY0spM
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-dbus-broker.service-zuPjvL
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-chronyd.service-hmVd0g
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-low-memory-monitor.service-6Jqe0i
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-polkit.service-5bLXXy
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-power-profiles-daemon.service-6v3Gss
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-rtkit-daemon.service-1cPdNk
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-switcheroo-control.service-8wIXB5
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-systemd-logind.service-gVfxk8
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-upower.service-hSyAz4
vmware-root_916-2689078442
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-ModemManager.service-xfdW0i
dbus-IdxVnnik
dbus-eB203F81
.X1024-lock
.X1025-lock
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-colord.service-9kR9zZ
.X0-lock
.X1-lock
systemd-private-43b3bd3d9b1847b3b1db6b6396598471-fwupd.service-0v19yv
VMwareDnD
hsperfdata_zbadalov
zbadalov@zbadalov: /tmp$
```

Рис. 5: Команда ls -f

```
zbadalov@zbadalov:/tmp$  
zbadalov@zbadalov:/tmp$ cd /var/spool  
zbadalov@zbadalov:/var/spool$ ls -l  
итого 0  
drwxr-x--x. 1 root abrt 1580 авг 28 18:09 abrt  
drwx-----. 1 abrt abrt 0 июл 19 2023 abrt-upload  
drwx--x---. 1 root lp 6 фев 16 2024 cups  
drwxr-xr-x. 1 root root 0 июл 21 2023 lpd  
drwxrwxr-x. 1 root mail 608 авг 30 18:13 mail  
drwxr-xr-x. 1 root root 0 июл 21 2023 plymouth  
zbadalov@zbadalov:/var/spool$
```

Рис. 6: Каталог /var/spool

```
zbadalov@zbadalov: /var/spool$ cd
zbadalov@zbadalov: /var/spool$ ls
.git-extended  work  Видео  Документы  Загрузки  Изображения  Музыка  Общедоступные  'Рабочий стол'  Шаблоны
zbadalov@zbadalov: /var/spool$ ls -al
итого 24
drwxr-xr-x. 1 zbadalov zbadalov 510 авг 30 19:38 .
drwxr-xr-x. 1 root root 602 авг 30 18:13 ..
-rw-r--r--. 1 zbadalov zbadalov 2591 авг 30 19:56 .bash_history
-rw-r--r--. 1 zbadalov zbadalov 18 янв 22 2024 .bash_logout
-rw-r--r--. 1 zbadalov zbadalov 144 янв 22 2024 .bash_profile
-rw-r--r--. 1 zbadalov zbadalov 678 авг 30 19:34 .bashrc
drwxr-xr-x. 1 zbadalov zbadalov 452 авг 30 19:39 .cache
drwxr-xr-x. 1 zbadalov zbadalov 398 авг 30 19:39 .config
-rw-r--r--. 1 zbadalov zbadalov 334 мар 25 03:00 .emacs
-rw-r--r--. 1 zbadalov zbadalov 231 авг 30 18:21 .gitconfig
drwxr-xr-x. 1 zbadalov zbadalov 74 авг 30 19:44 .git-extended
drwxr-xr-x. 1 zbadalov zbadalov 136 авг 30 18:20 .gnupg
drwxr-xr-x. 1 zbadalov zbadalov 20 авг 30 18:15 .local
drwxr-xr-x. 1 zbadalov zbadalov 48 авг 30 18:15 .mozilla
drwxr-xr-x. 1 zbadalov zbadalov 132 авг 30 18:23 .ssh
drwxr-xr-x. 1 zbadalov zbadalov 10 авг 30 18:23 work
drwxr-xr-x. 1 zbadalov zbadalov 0 авг 30 18:15 Видео
drwxr-xr-x. 1 zbadalov zbadalov 0 авг 30 18:15 Документы
drwxr-xr-x. 1 zbadalov zbadalov 0 авг 30 18:15 Загрузки
drwxr-xr-x. 1 zbadalov zbadalov 0 авг 30 18:15 Изображения
drwxr-xr-x. 1 zbadalov zbadalov 0 авг 30 18:15 Музыка
drwxr-xr-x. 1 zbadalov zbadalov 0 авг 30 18:15 Общедоступные
drwxr-xr-x. 1 zbadalov zbadalov 0 авг 30 18:15 'Рабочий стол'
drwxr-xr-x. 1 zbadalov zbadalov 0 авг 30 18:15 Шаблоны
zbadalov@zbadalov: /var/spool$
```

Рис. 7: Файлы в домашнем каталоге

```
chada@chada101:~$  
chada@chada101:~$ mkdir newdir/  
chada@chada101:~$ mkdir newdir/morefun  
chada@chada101:~$ mkdir letters memos misk  
chada@chada101:~$ ls  
git-extended  letters  memos  misk  newdir  work  Видео  Документы  Загрузки  Изображения  Музыка  Общедоступные  'Рабочий стол'  Работы  
chada@chada101:~$ rm letters/ memos/ misk/  
rm: невозможно удалить 'letters/': это каталог  
rm: невозможно удалить 'memos': это каталог  
rm: невозможно удалить 'misk/': это каталог  
chada@chada101:~$ rm -r letters/ memos/ misk/  
chada@chada101:~$ rm -r newdir/  
chada@chada101:~$ ls  
git-extended  work  Видео  Документы  Загрузки  Изображения  Музыка  Общедоступные  'Рабочий стол'  Работы  
chada@chada101:~$
```

Рис. 8: Действия с каталогами



```
zbadalov@zbadalov:~$ help cd
cd: cd [-L|[-P [-e]] [-@]] [жатадор]
    Change the shell working directory.

    Change the current directory to DIR.  The default DIR is the value of the
    HOME shell variable.  If DIR is "-", it is converted to $OLDPWD.

    The variable CDPATH defines the search path for the directory containing
    DIR.  Alternative directory names in CDPATH are separated by a colon (:).
    A null directory name is the same as the current directory.  If DIR begins
    with a slash (/), then CDPATH is not used.

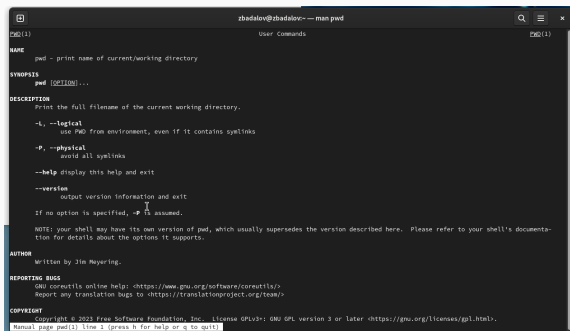
    If the directory is not found, and the shell option 'cdable_vars' is set,
    the word is assumed to be a variable name.  If that variable has a value,
    its value is used for DIR.

Options:
  -L      force symbolic links to be followed: resolve symbolic
          links in DIR after processing instances of '..'
  -P      use the physical directory structure without following
          symbolic links: resolve symbolic links in DIR before
          processing instances of '..'
  -e      if the -P option is supplied, and the current working
          directory cannot be determined successfully, exit with
          a non-zero status
  -@      on systems that support it, present a file with extended
          attributes as a directory containing the file attributes

The default is to follow symbolic links, as if '-L' were specified.
'..' is processed by removing the immediately previous pathname component
back to a slash or the beginning of DIR.

Exit Status:
Returns 0 if the directory is changed, and if $PWD is set successfully when
-P is used; non-zero otherwise.
zbadalov@zbadalov:~$
```

Рис. 10: Справка по команде cd



```
zhdalov@zhdalov:~$ man pwd
User Commands
pwd(1)

NAME
  pwd - print name of current/working directory

SYNOPSIS
  pwd [-option]...

DESCRIPTION
  Print the full filename of the current working directory.

  -L, --logical
      use PWD from environment, even if it contains symlinks

  -P, --physical
      avoid all symlinks

  --help
      display this help and exit

  --version
      output version information and exit

  If no option is specified, -P is assumed.

NOTE: your shell may have its own version of pwd, which usually supersedes the version described here. Please refer to your shell's documentation for details about the options it supports.

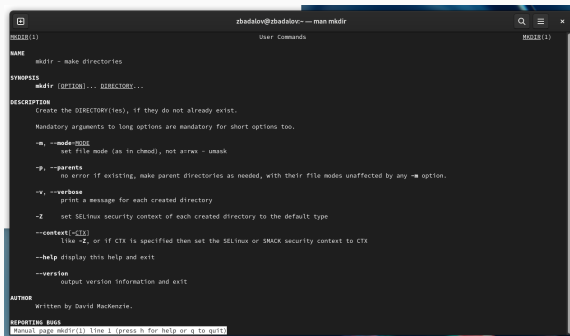
AUTHOR
  Written by Jim Meyerling.

REPORTING BUGS
  GNU coreutils online help: <https://www.gnu.org/software/coreutils/>
  Report any translation bugs to <https://translationproject.org/team/>

COPYRIGHT
  Copyright © 2023 Free Software Foundation, Inc.  License GPLv3+: GNU GPL version 3 or later <https://gnu.org/licenses/gpl.html>.
  Manual page pwd(1) line 1 (press h for help or q to quit)
```

Рис. 11: Справка по команде pwd





```
zbadalov@zbadalov:~$ man mkdir
mkdir(1)                                User Commands                                mkdir(1)

NAME
  mkdir - make directories

SYNOPSIS
  mkdir [OPTION]... DIRECTORY...

DESCRIPTION
  Create the DIRECTORY(ies), if they do not already exist.

  Mandatory arguments to long options are mandatory for short options too.

  -m, --mode=MODE
      set file mode (as in chmod), not a-rwx - umask

  -p, --parents
      no error if existing, make parent directories as needed, with their file modes unaffected by any -m option.

  -v, --verbose
      print a message for each created directory

  -Z
      set SELinux security context of each created directory to the default type

  --context[=CTX]
      like -Z, or if CTX is specified then set the SELinux or SMACK security context to CTX

  --help
      display this help and exit

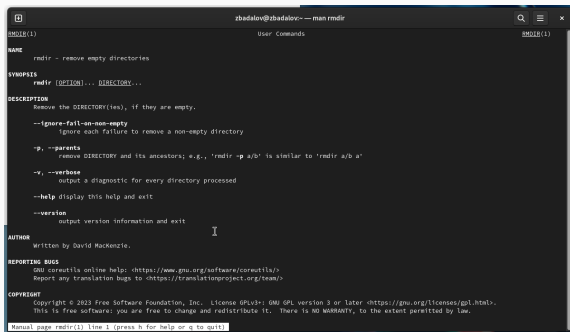
  --version
      output version information and exit

AUTHOR
  Written by David MacKenzie.

REPORTING BUGS
  Manual page mkdir(1) line 1 (press h for help or q to quit)
```

Рис. 12: Справка по команде mkdir

# Справка по командам



```
zbadalov@zbadalov:~$ man rmdir
rmdir(1)                                User Commands                                rmdir(1)

NAME
  rmdir - remove empty directories

SYNOPSIS
  rmdir [OPTION]... DIRECTORY...

DESCRIPTION
  Remove the DIRECTORY(ies), if they are empty.

  --ignore-fail-on-non-empty
    Ignore each failure to remove a non-empty directory

  -p, --parents
    remove DIRECTORY and its ancestors; e.g., 'rmdir -p a/b' is similar to 'rmdir a/b a'

  -v, --verbose
    output a diagnostic for every directory processed

  --help
    display this help and exit

  --version
    output version information and exit

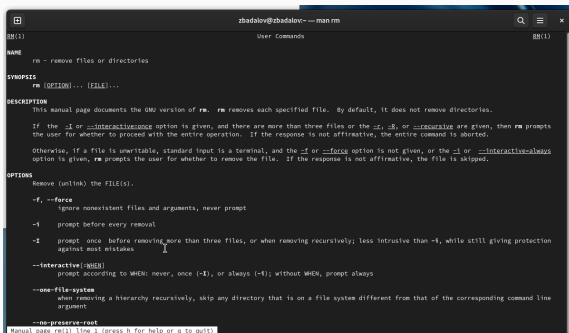
AUTHOR
  Written by David Mackenzie.

REPORTING BUGS
  GNU coreutils online help: <https://www.gnu.org/software/coreutils/>
  Report any translation bugs to <https://translationproject.org/team/>

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  This is free software; you are free to change and redistribute it. There is NO WARRANTY, to the extent permitted by law.

Manual page rmdir(1) line 1 (press h for help or q to quit)
```

Рис. 13: Справка по команде rmdir



```
zbadalov@zbadalov:~$ man rm
rm(1)                                User Commands                                rm(1)

NAME
  rm - remove files or directories

SYNOPSIS
  rm [OPTION]... [FILE]...

DESCRIPTION
  This manual page documents the GNU version of rm.  rm removes each specified file.  By default, it does not remove directories.

  If the -I or --interactive=once option is given, and there are more than three files or the -r, -R, or --recursive are given, then rm prompts the user for whether to proceed with the entire operation.  If the response is not affirmative, the entire command is aborted.

  Otherwise, if a file is unwritable, standard input is a terminal, and the -f or --force option is not given, or the -I or --interactive=always option is given, rm prompts the user for whether to remove the file.  If the response is not affirmative, the file is skipped.

OPTIONS
  Remove (unlink) the FILE(s).

  -f, --force
      ignore nonexistent files and arguments, never prompt

  -i
      prompt before every removal

  -I
      prompt once before removing more than three files, or when removing recursively; less intrusive than -i, while still giving protection against most mistakes

  --interactive=[WHEN]
      prompt according to WHEN: never, once (-I), or always (-i); without WHEN, prompt always

  --one-file-system
      when removing a hierarchy recursively, skip any directory that is on a file system different from that of the corresponding command line argument

  --no-preserve-root
      do not treat / specially

Manual page rm(1) line 1 (press h for help or q to quit)
```

Рис. 14: Справка по команде rm

# История командной строки

```
103 cd /var/spool
104 ls -l
105 cd
106 ls
107 ls -al
108 mkdir newdir
109 mkdir newdir/morefun
110 mkdir letters memos misk
111 ls
112 rm letters/ memos misk/
113 rm -r letters/ memos/ misk/
114 rm -r newdir/
115 ls
116 ls -R
117 ls -t
118 help cd
119 man pwd
120 man mkdir
121 man rmdir
122 man rm
123 history
zbadalov@zbadalov:~$
```

Рис. 15: Команда history

## **Выводы по проделанной работе**

---

Мы приобрели практические навыки взаимодействия пользователя с системой посредством командной строки.